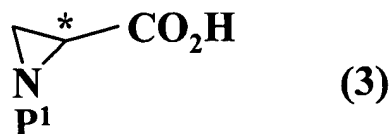


AMENDMENTS TO THE CLAIMS

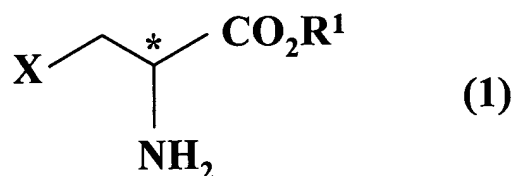
This listing of claims replaces all prior versions of claims in the application.

Claim 1. (Original): A process for producing an optically active N-protected-aziridine-2-carboxylic acid represented by the following formula (3):



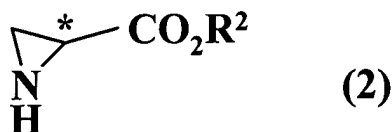
wherein * represents the position of an asymmetric carbon atom; and P¹ represents a benzenesulfonyl group substituted by nitro at the 2- and/or 4-positions;

or its salt characterized by comprising subjecting an optically active 3-haloalanine derivative represented by the following formula (1):



wherein X represents a halogen atom; R¹ represents a hydrogen atom or a monovalent organic group which is involved in a structure represented by -CO₂R¹ and thus is capable of serving as an ester type protective group of a carboxyl group; and * is as defined above;

to an intramolecular cyclization reaction in the presence of a base followed by, if needed, ester hydrolysis to give an optically active aziridine-2-carboxylic acid derivative represented by the following formula (2):



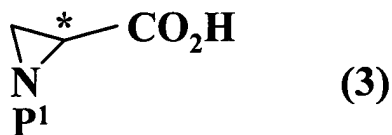
wherein * is as defined above; and R² has the same meaning as R¹ as defined above;

or its salt while maintaining the configuration at the 2-position, and then protecting the amino group followed by, if needed, ester hydrolysis.

Claim 2. (Original) The production process as claimed in claim 1, wherein P¹ in the formula (3) is a 2-nitrobenzenesulfonyl group or a 4-nitrobenzenesulfonyl group.

Claim 3. (Original): A production process as claimed in claim 1 or 2, wherein X in the formula (1) is a chlorine atom.

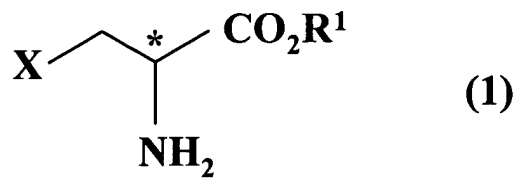
Claim 4. (Previously Presented): A process for producing an optically active N-protected-aziridine-2-carboxylic acid represented by the following formula (3):



wherein P¹ represents a benzenesulfonyl group substituted by nitro at the 2- and/or 4- positions

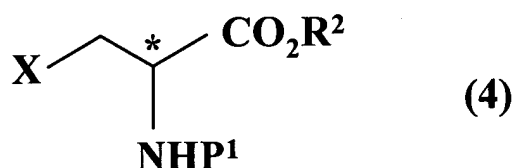
and * represents the position of an asymmetric carbon atom;

or its salt characterized by protecting the amino group of an optically active 3-haloalanine derivative represented by the following formula (1):



wherein X, R¹ and * are each as defined above;

or its salt followed by, if needed, ester hydrolysis to give an optically active N-protected-3-haloalanine derivative represented by the following formula (4):



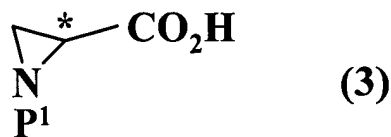
wherein X and * are each as defined above; R² has the same meaning as R¹ as defined above; and P¹ is the same as P¹ in the above formula (3);

or its salt, then subjecting it to an intramolecular cyclization reaction in the presence of a base followed by, if needed, ester hydrolysis.

Claim 5. (Original): The production process as claimed in claim 4, wherein X in the formula (1) is a chlorine atom.

Claim 6. (Original): A production process as claimed in claim 4 or 5, wherein P¹ in the formula (4) is a 2-nitrobenzenesulfonyl group or a 4-nitrobenzenesulfonyl group.

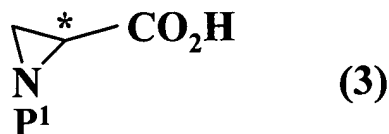
Claim 7. (Previously Presented): A process for producing an optically active amino acid derivative represented by the following formula (6):



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wherein R³ represents an optionally substituted cyclic or noncyclic alkyl group having 1 to 30 carbon atoms, an optionally substituted aralkyl group having 7 to 30 carbon atoms, an optionally substituted aryl group having 6 to 30 carbon atoms, an optionally substituted alkenyl group having 2 to 30 carbon atoms, or an optionally substituted alkynyl group having 2 to 30 carbon atoms; and P² represents a benzenesulfonyl group substituted by nitro at the 2- and/or 4- positions or represents a hydrogen atom;

or its salt characterized by comprising treating an optically active N-protected-aziridine-2-carboxylic acid represented by the following formula (3) which is produced by a method as claimed in claims 1, 2, 4 or 5:



wherein P¹ represents a benzenesulfonyl group substituted by nitro at the 2- and/or 4- positions and * as defined above;

or its salt with an organic metal reagent represented by the following formula (5):



wherein R³ is as defined above; and M represents an atomic group containing an alkali metal atom or an alkaline earth metal atom or an atomic group containing a zinc ion;

followed by, if needed, deblocking.

Claim 8. (Original): The production process as claimed in claim 7, wherein M in the formula (5) is lithium, sodium, MgCl, MgBr, ZnCl or ZnBr.

Claim 9. (Previously Presented): A production process as claimed in claim 7, wherein said deblocking is performed with the use of a thiol compound represented by the following formula (7):



wherein R^4 represents an optionally substituted alkyl group having 1 to 30 carbon atoms, an optionally substituted aralkyl group having 7 to 30 carbon atoms, or an optionally substituted aryl group having 6 to 30 carbon atoms;

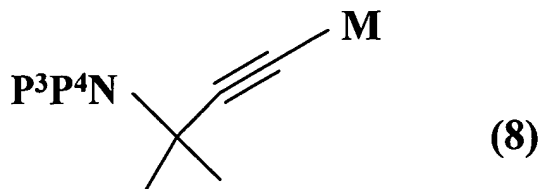
to give a compound represented by the formula (6) wherein P^2 is a hydrogen atom.

Claim 10. (Original): The production process as claimed in claim 9, wherein said thiol compound represented by the formula (7) is thiophenol.

Claim 11. (Previously Presented): A production process as claimed in claim 7, wherein said deblocking is performed with the use of a metal alkoxide to give a compound represented by the formula (6) wherein P^2 is a hydrogen atom.

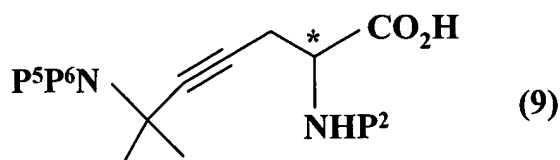
Claim 12. (Original): The production process as claimed in claim 11, wherein said metal alkoxide is an alkali metal alkoxide.

Claim 13. (Previously Presented): A production process as claimed in claim 7, wherein a metal acetylide represented by the following formula (8):



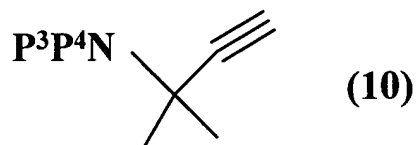
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wherein M is as defined above; and P³ and P⁴ independently represent each a hydrogen atom or an amino-protective group, or P³ and P⁴ form together an amino-protective group;
is used as said organic metal reagent represented by the formula (5) to give an optically active amino acid derivative represented by the following formula (9):



wherein P⁵ and P⁶ independently have the same meanings as P³ and P⁴ as described above; P² has the same meaning as P² as defined in the above formula (6); and * represents the position of an asymmetric carbon atom;
or its salt as the compound represented by the formula (6).

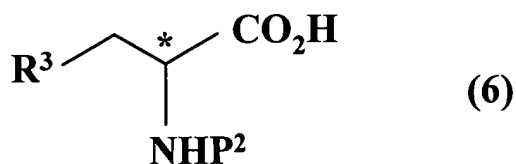
Claim 14. (Original): The production process as claimed in claim 13, wherein said metal acetylide represented by the formula (8) is prepared by treating an optionally protected 3,3-dimethylpropargylamine represented by the following formula (10):



wherein P³ and P⁴ are each as defined above;
with at least one member selected from among organic lithium, organic lithium amide, a Grignard reagent and organic magnesium amide.

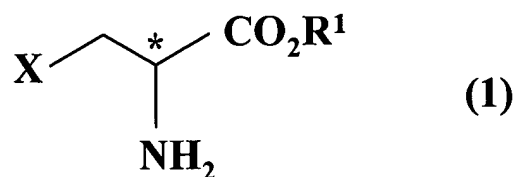
Claim 15. (Previously Presented): A production process as claimed in claim 13, wherein P^3 and P^4 in the formulae (8) and (10) respectively represent a hydrogen atom and a benzyl group.

Claim 16. (Previously Presented): A process for producing an optically active amino acid derivative represented by the following formula (6):



wherein R^3 represents an optionally substituted cyclic or noncyclic alkyl group having 1 to 30 carbon atoms, an optionally substituted aralkyl group having 7 to 30 carbon atoms, an optionally substituted aryl group having 6 to 30 carbon atoms, an optionally substituted alkenyl group having 2 to 30 carbon atoms, or an optionally substituted alkynyl group having 2 to 30 carbon atoms; and P^2 represents a benzenesulfonyl group substituted by nitro at the 2- and /or 4-positions or hydrogen atom;

or its salt characterized by comprising protecting the amino group of an optically active 3-haloalanine derivative represented by the following formula (1):

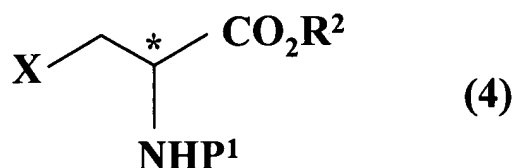


wherein X represents a halogen atom; R^1 represents a hydrogen atom or a monovalent organic group which is involved in a structure represented by O_2R^1 and thus is capable of serving as an

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ester type protective group of a carboxyl group; and * represents the position of an asymmetric carbon atom;

or its salt followed by, if needed, ester hydrolysis to give an optically active N-protected-3-haloalanine derivative represented by the following formula (4):



wherein X and * are each as defined above and R² has the same meaning as R¹;

or its salt, and then treating it with an organic metal reagent represented by the following formula (5):



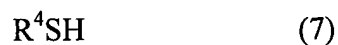
wherein R³ is as defined above;

followed by, if needed, deblocking and/or ester hydrolysis.

Claim 17. (Original): The production process as claimed in claim 16, wherein X in the formula (1) is a chlorine atom.

Claim 18. (Original): A production process as claimed in claim 16 or 17, wherein M in the formula (5) is lithium, sodium, MgCl, MgBr, ZnCl or Zn Br.

Claim 19. (Previously Presented): A production process as claimed in claim 16 or 17, wherein said deblocking is performed with the use of a thiol compound represented by the following formula (7):



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wherein R^4 is as defined above;

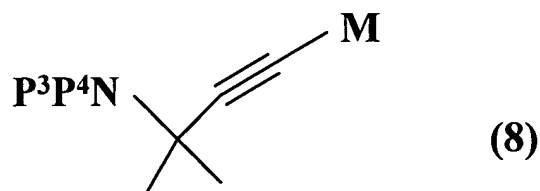
to give a compound represented by the formula (6) wherein P^2 is a hydrogen atom.

Claim 20. (Original): The production process as claimed in claim 19, wherein said thiol compound represented by the formula (7) is thiophenol.

Claim 21. (Previously Presented): A production process as claimed in claim 16 or 17, wherein said deblocking is performed with the use of a metal alkoxide to give a compound represented by the formula (6) wherein P^2 is a hydrogen atom.

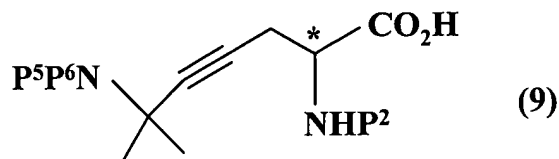
Claim 22. (Original): The production process as claimed in claim 21, wherein said metal alkoxide is an alkali metal alkoxide.

Claim 23. (Previously Presented): A production process as claimed in claim 16 or 17, wherein a metal acetylide represented by the following formula (8):



wherein M, P^3 and P^4 are each as defined above;

is used as said organic metal reagent represented by the formula (5) to give an optically active amino acid derivative represented by the following formula (9):

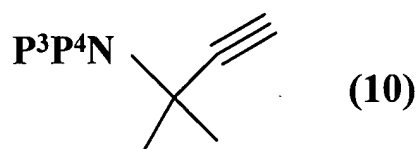


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wherein P^2 , P^5 , P^6 and $*$ are each as defined above;

or its salt as the compound represented by the formula (6).

Claim 24. (Original) The production process as claimed in claim 23, wherein said metal acetylide represented by the formula (8) is prepared by treating an optionally protected 3,3-dimethylpropargylamine represented by the following formula (10):



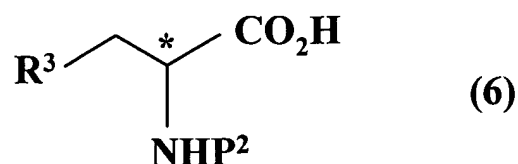
wherein P^3 and P^4 are each as defined above;

with at least one member selected from among organic lithium, organic lithium amide, a Grignard reagent and organic magnesium amide.

Claim 25.(Previously Presented) A production process as claimed in claim 23, wherein P^3 and P^4 in the formula (8) respectively represent a hydrogen atom and a benzyl group.

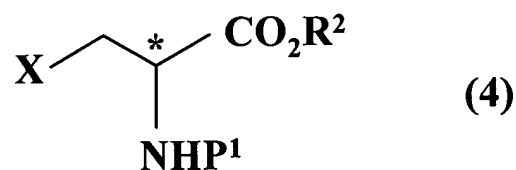
Claims 26 - 34 (Cancelled)

Claim 35. (Previously Presented): A process for producing an optically active amino acid derivative represented by the following formula (6):



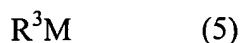
wherein R^3 represents an optionally substituted cyclic or noncyclic alkyl group having 1 to 30 carbon atoms, an optionally substituted aralkyl group having 7 to 30 carbon atoms, an optionally substituted aryl group having 6 to 30 carbon atoms, an optionally substituted alkenyl group having 2 to 30 carbon atoms, or an optionally substituted alkynyl group having 2 to 30 carbon atoms; and P^2 represents a benzenesulfonyl group substituted by nitro at the 2- and /or 4-positions or hydrogen atom;

or its salt characterized by comprising treating an optically active N-protected-3-haloalanine derivative represented by the following formula (4):



wherein X represents a halogen atom; R^2 represents a hydrogen atom or a monovalent organic group which is involved in a structure represented by O_2R^2 and thus is capable of serving as an ester type protective group of a carboxyl group; and * represents the position of an asymmetric carbon atom and P^1 represents a benzenesulfonyl group substituted by nitro at the 2- and/or 4-positions;

or its salt with an organic metal reagent represented by the following formula (5):



wherein R^3 is as defined above and M represents an atomic group containing an alkali metal atom or an alkaline earth metal atom or an atomic group containing a zinc ion;

followed by, if needed, deblocking and/or ester hydrolysis.

Claim 36. (Original): The production process as claimed in claim 35, wherein X in the formula (4) is a chlorine atom.

Claim 37. (Original): A production process as claimed in claim 35 or 36, wherein M in the formula (5) is lithium, sodium, MgCl, MgBr, ZnCl or Zn Br.

Claim 38. (Previously Presented): A production process as claimed in claim 35 or 36, wherein said deblocking is performed with the use of a thiol compound represented by the following formula (7):



wherein R^4 is as defined above;

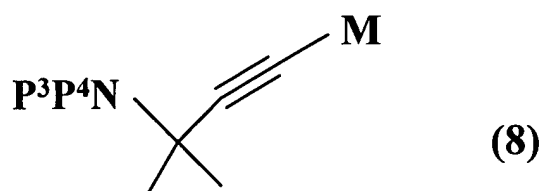
to give a compound represented by the formula (6) wherein P^2 is a hydrogen atom.

Claim 39. (Original): The production process as claimed in claim 38, wherein said thiol compound represented by the formula (7) is thiophenol.

Claim 40. (Previously Presented): A production process as claimed in claim 35 or 36, wherein said deblocking is performed with the use of a metal alkoxide to give a compound represented by the formula (6) wherein P^2 is a hydrogen atom.

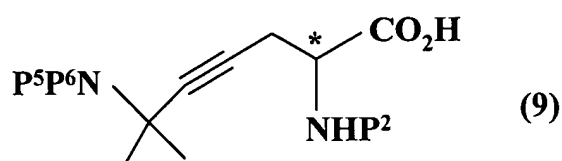
Claim 41. (Original): The production process as claimed in claim 40, wherein said metal alkoxide is an alkali metal alkoxide.

Claim 42. (Previously Presented): A production process as claimed in claim 35 or 36, wherein a metal acetylide represented by the following formula (8):



wherein M, P³ and P⁴ are each as defined above;

is used as said organic metal reagent represented by the formula (5) to give an optically active amino acid derivative represented by the following formula (9):



wherein P², P⁵, P⁶ and * are each as defined above;

or its salt as the compound represented by the formula (6).

Claim 43. (Original): The production process as claimed in claim 23, wherein said metal acetylide represented by the formula (8) is prepared by treating an optionally protected 3,3-dimethylpropargylamine represented by the following formula (10):

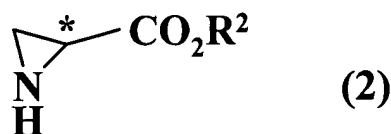


wherein P³ and P⁴ are each as defined above;

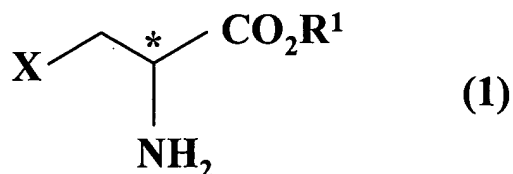
with at least one member selected from among organic lithium, organic lithium amide, a Grignard reagent and organic magnesium amide.

Claim 44. (Previously Presented): A production process as claimed in claim 42, wherein P^3 and P^4 in the formula (8) respectively represent a hydrogen atom and a benzyl group.

Claim 45. (Currently Amended): A process for producing an optically active aziridine-2-carboxylic acid derivative represented by the following formula (2):

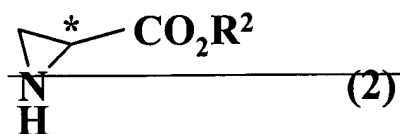


wherein R^2 represents a hydrogen atom or an alkyl group or an aralkyl group which is capable of serving as an ester type protective group of a carboxyl group and * represents the position of an asymmetric carbon atom; or its salt, comprising: ~~which comprises using~~ performing an intramolecular cyclization reaction on an optically active 3-haloalanine derivative represented by the following formula (1):



wherein X represents a halogen atom; R^1 represents a hydrogen atom or ~~a monovalent organic an~~ alkyl group or an aralkyl group which is involved in a structure represented by O_2R^1 and thus is capable of serving as an ester type protective group of a carboxyl group; and * represents the

position of an asymmetric carbon atom; or its salt in the presence of a base selected from the group consisting of an alkali metal hydroxide and an alkaline earth metal hydroxide and water at a temperature of 70°C or higher, and optionally followed by ester hydrolysis, to give ~~an~~ said optically active aziridine-2-carboxylic acid derivative, or its salt ~~represented by the following formula (2):~~



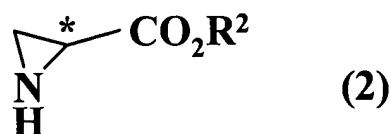
~~wherein R² has the same meaning as R¹ and * is as defined above;~~

~~or its salt, characterized by, using an alkali metal hydroxide or an alkaline earth metal hydroxide as the base, performing an intramolecular cyclization reaction in the presence of water at a temperature of 70°C or higher followed by, if needed, ester hydrolysis.~~

Claim 46. (Original): The production process as claimed in claim 45, wherein said base is an alkali metal hydroxide.

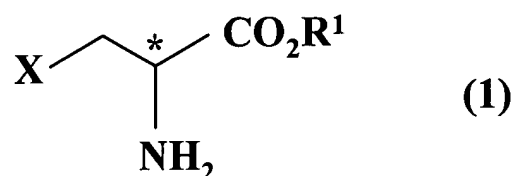
Claim 47. (Original): A production process as claimed in claim 45 or 46, wherein said optically active 3-haloalanine derivative or its salt is added to a mixture containing water and a base.

Claim 48. (Currently Amended): A process for producing an optically active aziridine-2-carboxylic acid derivative represented by the following formula (2):

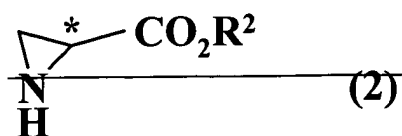


wherein R² has the same meaning as R¹ and * is as defined above represents a hydrogen atom or an alkyl group or an aralkyl group which is capable of serving as an ester type protective group of a carboxyl group; and * represents the position of an asymmetric carbon atom; or its salt, comprising:

performing an intramolecular cyclization reaction on ~~which comprises using~~ an optically active 3-haloalanine derivative represented by the following formula (1):



wherein X represents a halogen atom; R¹ represents a hydrogen atom or ~~a monovalent organic an~~ alkyl group or an aralkyl group which is involved in a structure represented by O₂-R¹ and thus is capable of serving as an ester type protective group of a carboxyl group; and * represents the position of an asymmetric carbon atom; or its salt in the presence of ~~a base~~ an amine, and optionally followed by ester hydrolysis, to give an said optically active aziridine-2-carboxylic acid derivative or its salt ~~represented by the following formula (2):~~

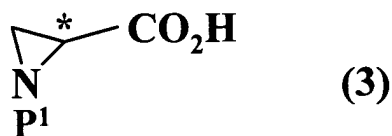


~~wherein R² has the same meaning as R¹ and * is as defined above;~~

~~or its salt, characterized by, using an amine as the base, performing an intramolecular cyclization reaction followed by, if needed, ester hydrolysis.~~

Claim 49. (Original): The production process as claimed in claim 48, wherein said amine is an aliphatic amine.

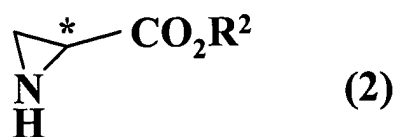
Claim 50. (Previously Presented): A process for producing an optically active N-protected-aziridine-2-carboxylic acid represented by the following formula (3):



wherein P¹ represents a benzenesulfonyl group substituted by nitro at the 2- and/or 4- positions

and * represents the position of an asymmetric carbon atom;

or its salt characterized by comprising treating an optically active aziridine-2-carboxylic acid derivative represented by the following formula (2) which is produced by a method as claimed in claim 45 or 46:

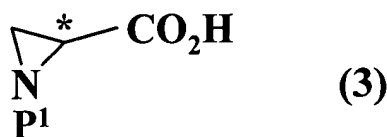


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wherein R^2 represents a hydrogen atom or a monovalent organic group which is involved in a structure represented by $-CO_2 R^2$ and thus is capable of serving as an ester type protective group of a carboxyl group and * is as defined above;

with benzenesulfonyl chloride p substituted by nitro at the 2- and/or 4-positions followed by, if needed, ester hydrolysis.

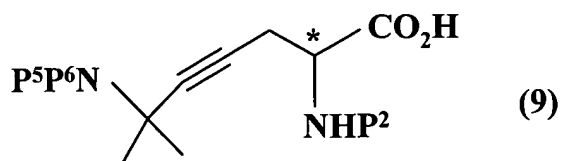
Claim 51. (Previously Presented): An optically active N-protected-aziridine-2-carboxylic acid represented by the following formula (3):



wherein P^1 represents a benzenesulfonyl group substituted by nitro at the 2- and/or 4- positions and * represents the position of an asymmetric carbon atom;
or its salt.

Claim 52. (Original): A compound as claimed in claim 51, wherein P^1 is a 2-nitrobenzenesulfonyl group or a 4-nitrobenzenesulfonyl group.

Claim 53. (Previously Presented): An optically active amino acid derivative represented by the following formula (9):



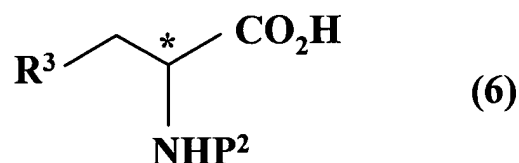
wherein P² represents a benzenesulfonyl group substituted by nitro at the 2- and/or 4- positions or hydrogen atom, P⁵ and P⁶ independently represent each a hydrogen atom or an amino-protective group, or P⁵ and P⁶ form together an amino-protective group and * represents the position of an asymmetric carbon atom;
or its salt.

Claim 54. (Original): A compound as claimed in claim 53, wherein P² is a 2-nitrobenzenesulfonyl group or a 4-nitrobenzenesulfonyl group.

Claim 55. (Original): A compound as claimed in claim 53, wherein P² is a hydrogen atom.

Claim 56. (Original) : A compound as claimed in any of claims 53 to 55, wherein P⁵ is a hydrogen atom and P⁶ is a benzyl group.

Claim 57. (Previously Presented) : A process for crystallizing a compound represented by the following formula (6):



wherein R³ represents an optionally substituted cyclic or noncyclic alkyl group having 1 to 30 carbon atoms, an optionally substituted aralkyl group having 7 to 30 carbon atoms, an optionally substituted aryl group having 6 to 30 carbon atoms, an optionally substituted alkenyl group having 2 to 30 carbon atoms, or an optionally substituted alkynyl group having 2 to 30 carbon atoms;

characterized by comprising neutralizing with an acid an aqueous solution containing an N-protected optically active amino acid derivative salt represented by the formula (6) wherein P^2 is a 2-nitrobenzenesulfonyl group or a 4-nitrobenzenesulfonyl group and thus crystallizing to thereby give the compound of the formula (6) in free state.

Claim 58. (Original) : The crystallization process as claimed in claim 57, wherein said N-protected amino acid derivative salt is an alkali metal salt.

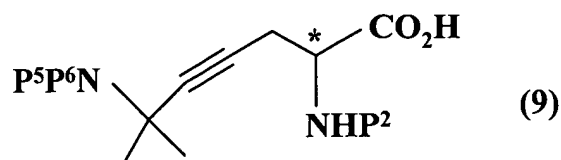
Claim 59. (Original) : The crystallization process as claimed in claim 58, wherein said alkali metal salt is a lithium salt.

Claim 60. (Original) : A crystallization process as claimed in any of claims 57 to 59, wherein said acid is a halogenated hydroacid.

Claim 61. (Original) : The crystallization process as claimed in claim 60, wherein said halogenated hydroacid is hydrogen chloride.

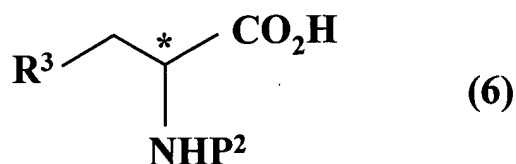
Claim 62. (Previously Presented) : A crystallization process as claimed in any of claims 57 to 59, wherein the reaction is performed in the coexistence of an organic solvent compatible with water.

Claim 63. (Previously Presented) : A crystallization process as claimed in any of claims 57 to 59, wherein said compound represented by the formula (6) is an N-protected optically active amino acid derivative salt represented by the following formula (9):



wherein P² represents a 2-nitrobenzenesulfonyl group or a 4-nitrobenzenesulfonyl group; and P⁵, P⁶ and * are each as defined above.

Claim 64. (Previously Presented) : A process for crystallizing a compound represented by the following formula (6):



wherein R³ represents an optionally substituted cyclic or noncyclic alkyl group having 1 to 30 carbon atoms, an optionally substituted aralkyl group having 7 to 30 carbon atoms, an optionally substituted aryl group having 6 to 30 carbon atoms, an optionally substituted alkenyl group having 2 to 30 carbon atoms, or an optionally substituted alkynyl group having 2 to 30 carbon atoms; and * represents the position of an asymmetric carbon atom;

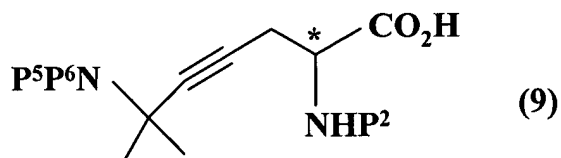
characterized by comprising salting out with a halogenated alkali metal salt an aqueous solution containing an alkali metal salt of an optically active amino acid derivative represented by the formula (6) wherein P² is hydrogen atom to thereby give an alkali metal salt of the compound (6).

Claim 65. (Original) : The crystallization process as claimed in claim 64, wherein said alkali metal salt of an optically active amino acid derivative is a lithium salt.

Claim 66. (Original) : A crystallization process as claimed in claim 64 or 65, wherein said halogenated alkali metal salt is lithium chloride.

Claim 67. (Previously Presented) : A crystallization process as claimed in claim 64 or 65, wherein the reaction is performed in the coexistence of an organic solvent compatible with water.

Claim 68. (Previously Presented) : A crystallization process as claimed in claim 64 or 65, wherein said compound represented by the formula (6) is an optically active amino acid derivative salt represented by the following formula (9):



wherein P² represents a hydrogen atom; and P⁵, P⁶ and * are each as defined above.

Claim 69. (Cancelled).

Claim 70. (New): The production process as claimed in claim 45, wherein said optically active 3-haloalanine derivative or the salt thereof is added to an aqueous solution of the base, maintained at a temperature not lower than 70°C.

Claim 71. (New): The production process as claimed in claim 45, wherein R¹ and R² are both hydrogen atoms.

Claim 72. (New): The production process as claimed in claim 45, wherein said base is sodium hydroxide.

Claim 73. (New): The production process as claimed in claim 48, wherein said amine is selected from the groups consisting of triethylamine, diisopropylethylamine, diisopropylamine and isopropylamine.